Operating Instructions
VEGADIS 61

Indication
and adjustment

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Supplementary documentation

Information:
Supplementary documents appropriate to the ordered version come with the delivery. You can find them listed in chapter "*Product description*".

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1 About this document

1.1 Function

This operating instructions manual provides all the information you need for mounting, connection and setup as well as important instructions for maintenance and fault rectification. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.2 Target group

This operating instructions manual is directed to trained qualified personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used

Information, tip, note
This symbol indicates helpful additional information.

Caution: If this warning is ignored, faults or malfunctions can result.
Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.
Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.

Ex applications
This symbol indicates special instructions for Ex applications.

- **List**
  The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence**
Numbers set in front indicate successive steps in a procedure.

2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

2.2 Appropriate use

VEGADIS 61 is an external indicating and adjustment unit for VEGA plics® sensors.

You can find detailed information on the application range in chapter "*Product description*".

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

This is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.

The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for trouble-free operation of the instrument.

During the entire duration of use, the user is obliged to determine the compliance of the required occupational safety measures with the current valid rules and regulations and also take note of new regulations.

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2.5 Safety approval markings and safety tips

The safety approval markings and safety tips on the device must be observed.

2.6 CE conformity

The instrument is in CE conformity with EMC (89/336/EWG), fulfils NAMUR recommendation NE 21 and is in CE conformity with LVD (73/23/EG).

Conformity has been judged according to the following standards:

- EMC:
  - Emission EN 61326: 1997 (class B)
  - Susceptibility EN 61326: 1997/A1:1998
- LVD: EN 61010: 2001

2.7 Safety instructions for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions manual and come with the Ex-approved instruments.

2.8 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

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3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- Indicating and adjustment unit VEGADIS 61
- Cable entry M20x1 for the sensor
- Documentation
  - this operating instructions manual
  - Operating instructions manual 27835 "*Indicating and adjustment module PLICSCOM*"
  - Supplementary instructions manual - 31708 "*Heating for indicating and adjustment module PLICSCOM*" (optional)
  - Ex-specific "*Safety instructions*" (with Ex-versions)
  - if necessary, further certificates

Components

VEGADIS 61 consists of the following components:

- Mounting element (according to the order specification mounting plate for wall mounting, clip for carrier rail mounting or strap for tube mounting)
- Housing with electronics
- Housing cover with integrated PLICSCOM

The components are available in different versions.

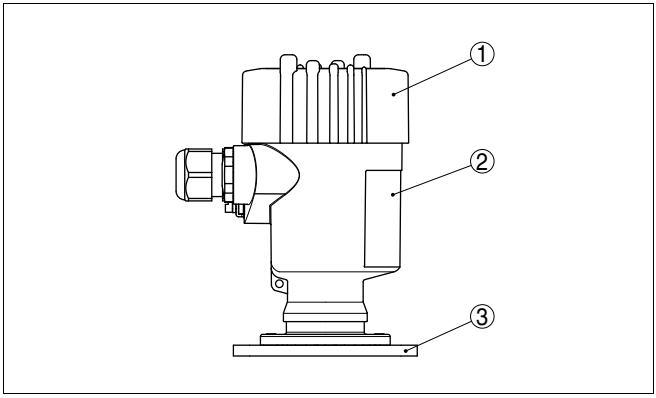

Fig. 1: VEGADIS 61 with plastic housing and mounting plate for wall mounting
1 Housing cover with integrated PLICSCOM
2 Housing with electronics
3 Mounting plate

Type label

The type label contains the most important data for identification and use of the instrument:

- Article number
- Serial number
- Technical data

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- Article numbers documentation

With the serial number, you can access the delivery data of the instrument via www.vega.com, "*VEGA Tools*" and "*serial number search*". In addition to the type label outside, you can also find the serial number on the inside of the instrument.

3.2 Principle of operation

Application area

VEGADIS 61 is an external indicating and adjustment unit for VEGA plics® sensors.

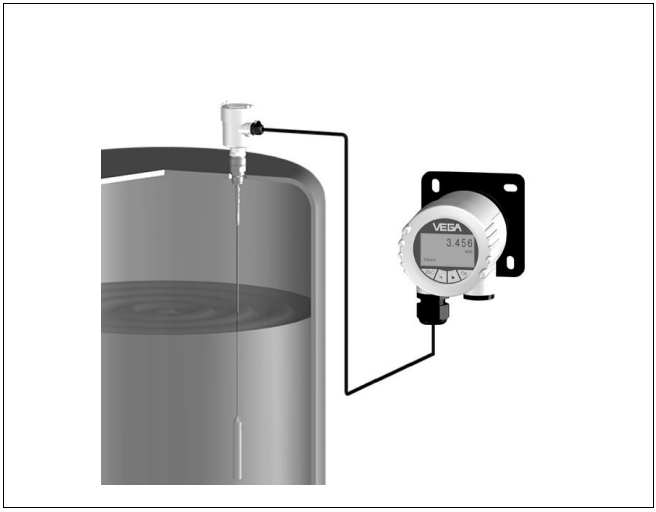

Fig. 2: Connection of VEGADIS 61 to the sensor

Connection to 4 ... 20 mA/ HART sensors

VEGADIS 61 is connected to the sensor with a screened four-wire standard cable up to 25 m long. Communication is carried out via this cable and the VEGADIS 61 is also powered by the sensor. An additional power supply is not necessary.

Connection to PA/FF sensors

VEGADIS 61 is connected with a screened four-wire **special cable** of 25 m length with connection socket M12 x 1 to the sensor. Communication is carried out via this cable and the VEGADIS 61 is also powered by the sensor. An additional power supply is not necessary.

Note:
This cable is absolutely necessary for reliable function of VEGADIS 61 as well as the sensor.

3.3 Operation

The respective sensor can be operated as follows via VEGADIS 61:

- with indicating and adjustment module
- an adjustment software according to FDT/DTM standard, e.g. PACTware and PC

The entered parameters are generally saved in the respective sensor, when used with PACTware and PC optionally also on the PC.

3.4 Packaging, transport and storage

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test according to DIN EN 24180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out under consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

- Storage and transport temperature see chapter "*Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 … 85 %

4 Mounting

4.1 General instructions

Mounting position

VEGADIS 61 functions in any installation position. The housing can be rotated by 330° without the use of any tools.

Moisture

Use the recommended cables (see chapter "*Connecting to power supply*") and tighten the cable gland.

You can give your instrument additional protection against moisture penetration by leading the connection cable downward in front of the cable entry. Rain and condensation water can thus drain off. This applies mainly to outdoor mounting as well as installation in areas where high humidity is expected (e.g. through cleaning processes) or on cooled or heated vessels.

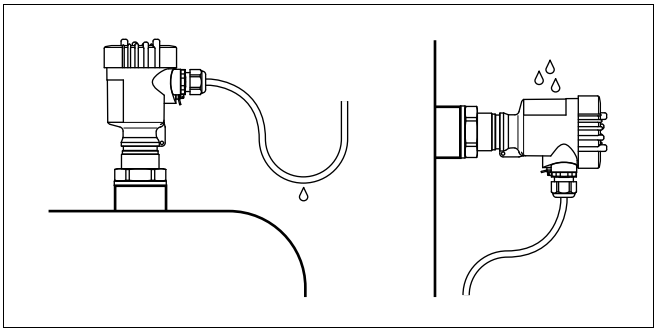

Fig. 3: Measures against moisture penetration

4.2 Mounting instructions

Wall mounting

VEGADIS 61 for wall mounting is supplied with a mounting socket.

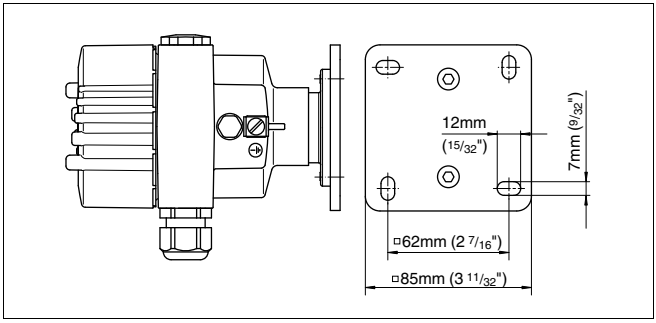

Fig. 4: VEGADIS 61 for wall mounting, bottom view of mounting plate.
1 Drilling dimensions

Carrier rail mounting

VEGADIS 61 for mounting on carrier rail is supplied with a mounting adapter.

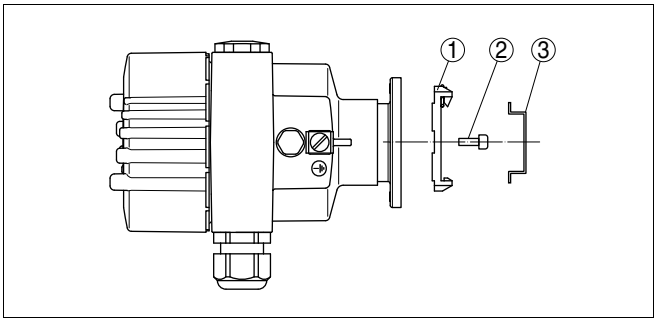

Fig. 5: VEGADIS 61 for carrier rail mounting
1 Adapter plate
2 Screw M4 x 6
3 Carrier rail

Tube mounting

VEGADIS 61 for tube mounting is supplied with a meas. instrument holder and four screws M5 x 12 as mounting accessory. The meas. instrument holder is mounted to the socket of VEGADIS 61.

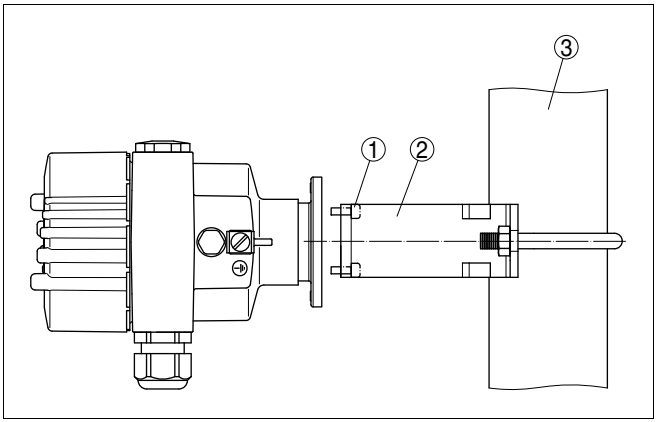

Fig. 6: VEGADIS 61 for tube mounting
1 4 screws M5 x 12
2 Measuring instrument holder
3 Tube

5 Connecting to power supply

5.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage

Take note of safety instructions for Ex applications

In hazardous areas you should take note of the appropriate regulations, conformity and type approval certificates of the sensors and power supply units.

Select connection cable 4 … 20 mA/HART sensors

VEGADIS 61 is connected to the sensor with standard four-wire cable with screen.

Use cable with round cross-section. A cable outer diameter of 5 … 9 mm (0.2 … 0.35 in) ensures the seal effect of the cable gland. If you are using cable with a different diameter or cross-section, exchange the seal or use a suitable cable gland.

Sensors with double chamber housing can be optionally equipped with a 4-pole plug M12 x 1 for connection of VEGADIS 61.

Tip:
We recommend using a suitable, confectioned lead cable, e.g. length 25 m, VEGA article no. ASL.1SC.

Select connection cable PA/FF sensors

VEGADIS 61 is connected with a screened four-wire **special cable** of up to 25 m length with connection socket M12 x 1 to the sensor.

PA/FF sensors with signle or double chamber housing can be optionally equipped with a 5-pole plug M12 x 1 for connection of VEGADIS 61.

Information:
The special cable is part of the scope of delivery of PA/FF sensors with connection plug M12 x 1 for VEGADIS 61.

Select connection cable for Ex applications

Take note of the corresponding installation regulations for Ex applications.

Cable screening and grounding

Connect the cable screen on both ends to ground potential. In VEGADIS 61 and in the sensor, the screen must be connected directly to the internal ground terminal. The ground terminal on the outside of the housing must be connected to the potential equalisation (low impedance).

Cable screen and grounding for Ex applications

In Ex applications, one-sided grounding on the sensor is recommended, see EN 60079-14.

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5.2 Connection procedure

Proceed as follows:

1 Unscrew the housing cover

2 Remove the indicating and adjustment module by turning it slightly to the left

3 Loosen compression nut of the cable entry

4 Remove approx. 10 cm of the cable mantle, strip approx. 1 cm insulation from the individual wires

5 Insert the cable into VEGADIS 61 through the cable entry

6 Lift the opening levers of the terminals with a screwdriver (see following illustration)

7 Insert the wire ends into the open terminals according to the wiring plan

8 Press down the opening levers of the terminals, you will hear the terminal spring closing

9 Check the hold of the wires in the terminals by lightly pulling on them

10 Connect the screen to the ground terminal

11 Connect the ground terminal outside on the housing according to specification (low impedance)

12 Tighten the compression nut of the cable entry. The seal ring must completely encircle the cable

13 Screw the housing cover on

The electrical connection is finished.

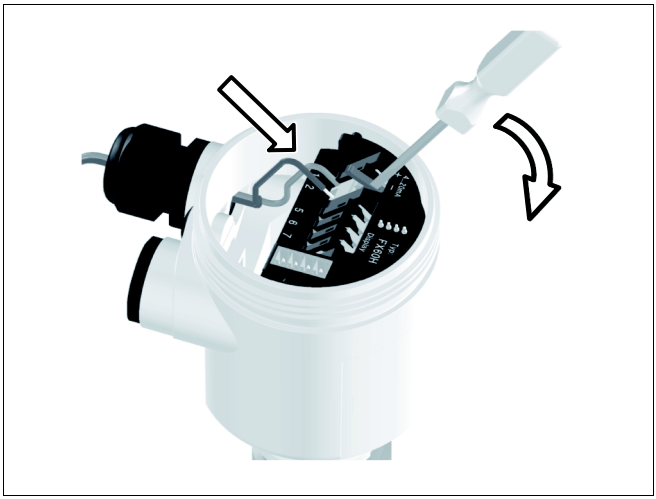

Fig. 7: Connection steps 6 and 7

5.3 Wiring plan

Electronics and connection compartment

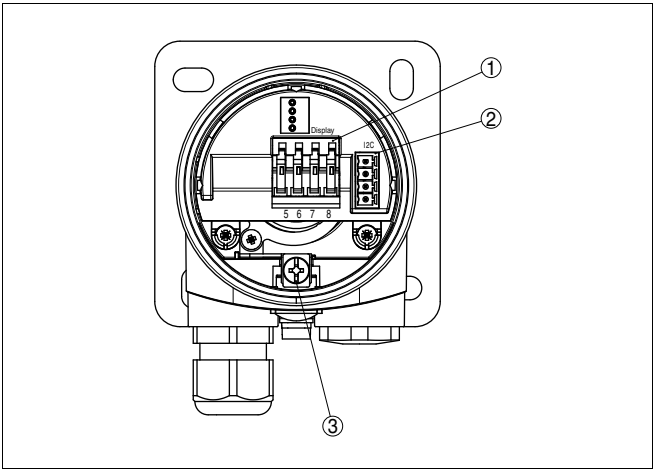

Fig. 8: Electronics and connection compartment
1 Spring-loaded terminals for connection to the sensor
2 Plug connector for VEGACONNECT (I^2C interface)
3 Ground terminal for connection of the cable screen[1)]

Wiring plan (4 … 20 mA/ HART sensors)

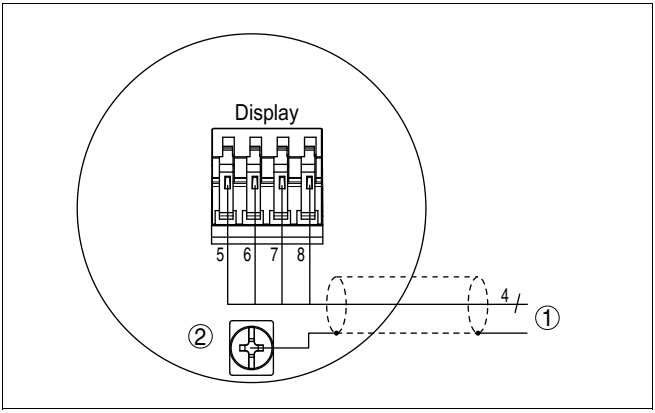

Fig. 9: Wiring plan VEGADIS 61 for 4 … 20 mA/HART sensors
1 To the sensor
2 Grounding on both ends with non-Ex. With Ex, one-sided grounding at the sensor is recommended, see EN 60079-14.

Connection via standard cable

Connection between VEGADIS 61 and sensor is carried out according to the chart:

1) Connect screen here. Connect ground terminal on the outside of the housing as prescribed. The two terminals are galvanically connected.

VEGADIS 61	Sensor
Terminal 5	Terminal 5
Terminal 6	Terminal 6
Terminal 7	Terminal 7
Terminal 8	Terminal 8

Connection via confectioned cable with 4-pole socket M12 x 1
Connection between VEGADIS 61 and sensor with 4-pole plug M12 x 1 is carried out according to the following chart. The specification of the wire colours refers to the confectioned VEGA cable, article no. ASL.1S.[2)]

Wire colour	VEGADIS 61
Brown	Terminal 5
White	Terminal 6
Blue	Terminal 7
Black	Terminal 8

Wiring plan (PA/FF sensors)

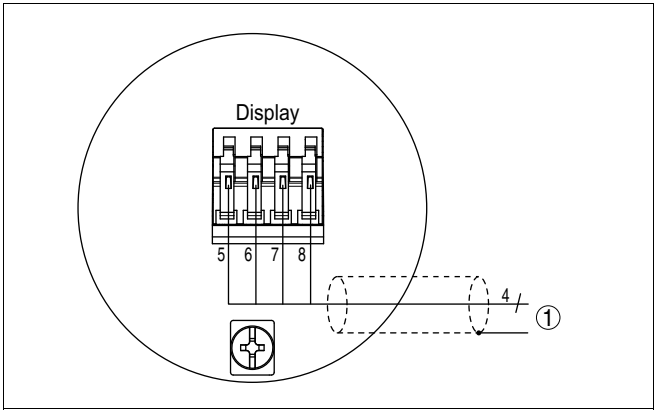

Fig. 10: Wiring plan VEGADIS 61 for PA/FF sensors
1 To the sensor

Connection via confectioned cable with 5-pole socket M12 x 1
The connection between VEGADIS 61 and sensor with 5-pole plug M12 x 1 is carried out according to the following chart. The specification of the wire colours refers to the confectioned special cable supplied with this sensor version.[3)]

[2)] Plug M12x1, optional with plics® double chamber housing.
[3)] Plug M12 x 1, optional with plics® single and double chamber housing.

Wire colour	VEGADIS 61
Black	Terminal 5
White	Terminal 6
Blue	Terminal 7
Brown	Terminal 8

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6 Set up with the indicating and adjustment module PLICSCOM

6.1 Short description

Function/Configuration

The indicating and adjustment module is used for measured value display, adjustment and diagnosis. It can be mounted in the following housing versions and instruments:

- All sensors of the plics® instrument family, in the single as well as in the double chamber housing (optionally in the electronics or connection compartment)
- External indicating and adjustment unit VEGADIS 61

From a hardware version …- 01 or higher of PLICSCOM as well as a hardware version …- 01, 03 or higher of the corresponding sensor, an integrated backlight can be switched on via the adjustment menu. The hardware version is stated on the type label of the PLICSCOM or the sensor electronics.

Note:
You can find detailed information on adjustment in the operating instructions manual "*Indicating and adjustment module*".

6.2 Insert indicating and adjustment module PLICSCOM

Insert/remove PLICSCOM

PLICSCOM can be inserted into VEGADIS 61 and removed again at any time. It is not necessary to interrupt the power supply.

For mounting, proceed as follows:

1 Unscrew the housing cover
2 Place PLICSCOM in the desired position on the electronics (you can choose any one of four different positions - each displaced by 90°)
3 Press PLICSCOM lightly onto the electronics and turn it to the right until it snaps in.
4 Screw housing cover with inspection window tightly back on

Removal is carried out in reverse order.

PLICSCOM is powered by the sensor, an additional connection is not necessary.

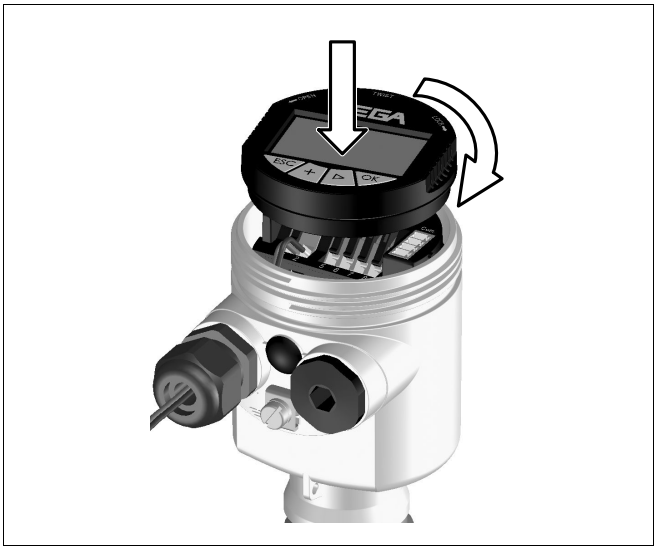

Fig. 11: Installation of PLICSCOM

6.3 Adjustment system

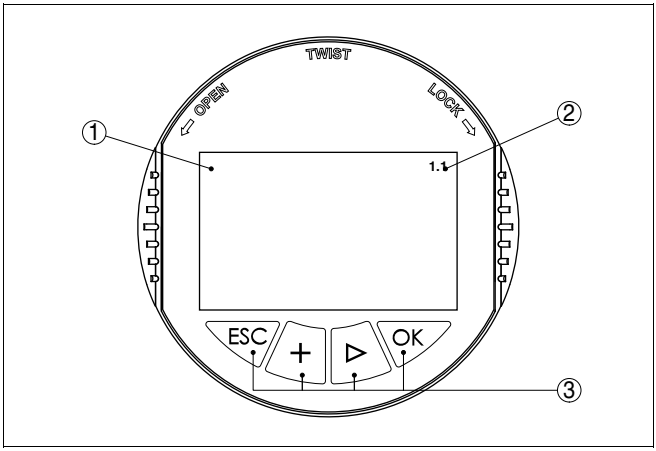

Fig. 12: Indicating and adjustment elements
1 LC display
2 Indication of the menu item number
3 Adjustment keys

Key functions

- ***[OK]*** key:
  - Move to the menu overview
  - Confirm selected menu
  - Edit parameter
  - Save value
- ***[->]*** key to select:
  - menu change
  - list entry
  - Select editing position
- ***[+]*** key:
  - Change value of the parameter
- ***[ESC]*** key:
  - interrupt input
  - jump to the next higher menu

Adjustment system

The sensor is adjusted via the four keys of the indicating and adjustment module. The LC display indicates the individual menu items. The functions of the individual keys are shown in the above illustration. Approx. 10 minutes after the last pressing of a key, an automatic reset to measured value indication is triggered. Any values not confirmed with ***[OK]*** will not be saved.

6.4 Setup procedure

Setup and adjustment of the respective sensor is carried out according to the operating instructions manual of the respective sensor.

7 Maintenance and fault rectification

7.1 Maintenance

When used in the correct way, no special maintenance is required in normal operation.

7.2 Remove interferences

Reaction when malfunctions occur

The operator of the system is responsible for taken suitable measures to remove interferences.

Causes of malfunction

A maximum of reliability is ensured. Nevertheless, faults can occur during operation. These may be caused by the following, e.g.:

- Sensor
- Process
- Power supply
- Signal processing

Fault rectification

The first measures to be taken are to check the output signals as well as to evaluate the error messages via the indicating and adjustment module. The procedure is described in the operating instructions of the respective sensor. Further comprehensive diagnostics can be carried out on a PC with the software PACTware and the suitable DTM. In many cases, the causes can be determined in this way and faults can be rectified.

24 hour service hotline

However, should these measures not be successful, call the VEGA service hotline in urgent cases under the phone no. **+49 1805 858550**.

The hotline is available to you 7 days a week round-the-clock. Since we offer this service world-wide, the support is only available in the English language. The service is free of charge, only the standard telephone costs will be charged.

Reaction after fault rectification

Depending on the failure reason and measures taken, the steps described in chapter "*Set up*" must be carried out again, if necessary.

7.3 Instrument repair

If a repair is necessary, please proceed as follows:

You can download a return form (23 KB) from our Internet homepage www.vega.com under: "*Downloads - Forms and certificates - Repair form*".

By doing this you help us carry out the repair quickly and without having to call back for needed information.

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof

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- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please ask the agency serving you for the address of your return shipment. You can find the respective agency on our website www.vega.com under: "*Company - VEGA worldwide*"

8 Dismounting

8.1 Dismounting steps

Warning:
Before dismounting, be aware of dangerous process conditions such as e.g. pressure in the vessel, high temperatures, corrosive or toxic products etc.

Take note of chapters "*Mounting*" and "*Connecting to power supply*" and carry out the listed steps in reverse order.

8.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the electronics to be easily separable.

WEEE directive 2002/96/EG
This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

Correct disposal avoids negative effects to persons and environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

If you have no possibility to dispose of the old instrument professionally, please contact us concerning return and disposal.

9 Supplement

9.1 Technical data

General data	
316L corresponds to 1.4404 or 1.4435, 316Ti corresponds to 1.4571	
Materials	
– Housing	plastic PBT, Alu die-casting, 316L
– Inspection window in housing cover for indicating and adjustment module	Polycarbonate (UL-746-C listed)
– Ground terminal	316Ti/316L
Weight	0.35 kg (0.772 lbs)

Ambient conditions	
Ambient temperature	-15 … +70 °C (+5 … +158 °F)
Storage and transport temperature	-40 … +80 °C (-40 … +176 °F)

Electromechanical data	
Cable gland	1 x cable gland M20 x 1.5 (cable: ø 5 … 9 mm), 1 x blind stopper M20 x 1.5 or 1 x closing cap ½ NPT, 1 x blind stopper ½ NPT
Spring-loaded terminals for wire cross-section up to	2.5 mm^2 (AWG 14)

Indicating and adjustment module	
Voltage supply and data transmission	through sensor via gold-plated sliding contacts (I^2C bus)
Indication	LC display in dot matrix
Adjustment elements	4 keys
Protection	
– unassembled	IP 20
– mounted into VEGADIS 61 without cover	IP 40
Materials	
– Housing	ABS
– Inspection window	Polyester foil

Adjustment circuit	
Connection to	VEGA plics® sensors
Data transmission	digital (I^2C-Bus)
Connection cable	4-wire, screened
Cable length	max. 25 m

Electrical protective measures	
Protection	
– Housing plastic	IP 66/IP 67
– Housing Aluminium, stainless steel	IP 66/IP 68 (0.2 bar)
Overvoltage category	III
Protection class	II

Approvals[4)]	
ATEX ia	ATEX II 1G, 2G EEx ia IIC T6
ATEX ia + D	ATEX II 1G, 1/2G, 2G EEx ia IIC T5 + ATEX II 1/2 D IP6X T
ATEX D	ATEX II 1/2 D IP6X T
IEC ia	IEC Ex ia IIC T6
IEC tD	IEC Ex Ex tD A21 IP65 T65°
FM	FM (IS) Cl.I-III, Div 1, GP ABCDEF
CSA	CSA (IS) Cl.I-III, Div 1, GP ABCDEFG

4) Deviating data in Ex applications: see separate safety instructions.

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9.2 Dimensions

VEGADIS 61 housing

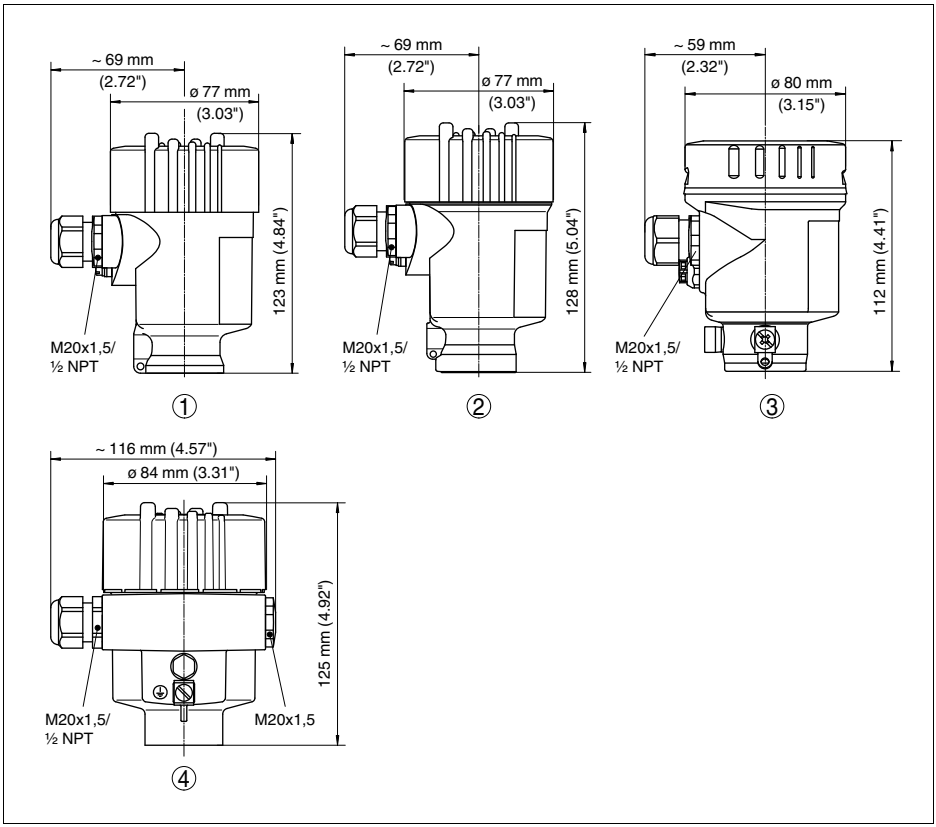

Fig. 13: VEGADIS 61 housing versions
1 Plastic housing
2 Stainless steel housing - precision casting
3 Stainless steel housing, electropolished
4 Aluminium housing

VEGADIS 61 mounting elements

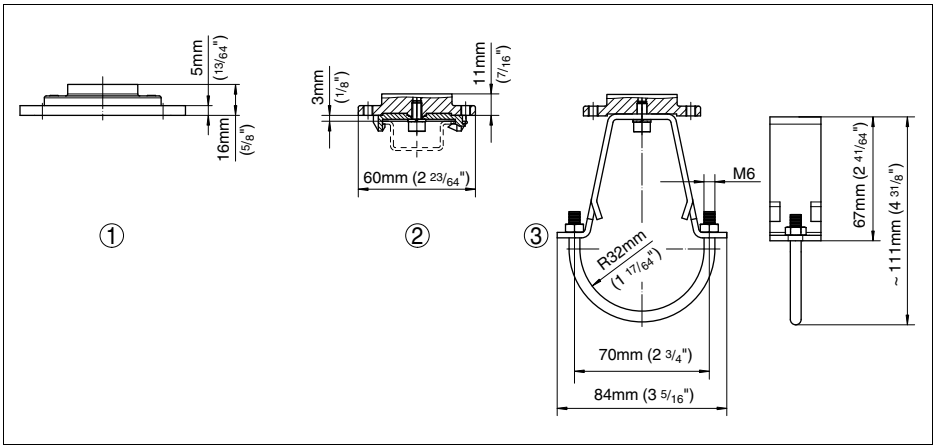

Fig. 14: VEGADIS 61 mounting elements
1 Mounting plate for wall mounting
2 Clip for carrier rail mounting
3 Strap for tube mounting

9.3 Industrial property rights

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Only in U.S.A.: Further information see patent label at the sensor housing.

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9.4 Trademark

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

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